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Re: Comments on the DEIS for the South Fork Wind Farm Project

The Division of Marine Fisheries (MA DMF) has reviewed the Draft Environmental Impact Statement (DEIS) for Deepwater Wind South Fork's (DWSF) South Fork Wind Farm (SFWF) and South Fork Export Cable (SFEC) project located in BOEM Renewable Energy Lease Number OCS-A 0517. The Proposed Action would include up to fifteen 6-12 MW wind turbine generators (WTGs) on monopile foundations and one offshore substation (OSS) that would occupy up to 355 acres of seabed surface. The Proposed Action design would orient WTGs within the lease area in north-south and east-west facing rows with WTGs spaced 1 nautical mile apart. The Proposed Action includes 21.4 miles of interarray cable buried to 4-6 feet and between 50 and 62 miles of one alternating current (AC) electric cable (34.5 or 66 kV) buried to 4-6 feet that would travel west from the Lease Area south of Block Island and reach landfall at either the Beach Lane or Hither Hills landing site on Long Island, New York. For areas where this target burial depth is not feasible, some form of armoring (fronded mattresses, rock bags, rock, or engineered concrete mattresses) would be employed for cable protection. The landfall and nearshore section of the SFEC is proposed to be installed using horizontal directional drilling (HDD) extending at least 650 feet from the mean high water line (MHWL) to at least 1,750 feet seaward of the MHWL. Seabed disturbance from the SFEC and associated anchoring is estimated to be 573 acres with up to 0.5 inches of sediment deposition from suspended sediment. Construction is planned to take 2 years (2021-2022). The conceptual decommissioning plan includes cutting the monopile foundations 15 feet below the seabed and removal of cables after 25 years. Environmental protection measures are also incorporated as part of the Proposed Action.

Two alternatives are also presented: the Vessel Transit Lane Alternative (Transit Alternative) and the Fisheries Habitat Impact Minimization Alternative (Habitat Alternative). The Transit Alternative includes a 4-nm-wide vessel transit lane, part of which overlaps the southern section of the lease area. This alternative requires using 12 MW turbines, and any of the original turbine locations that are in the transit lane would be eliminated. The Habitat Alternative "would require DWSF to exclude certain WTGs and associated cable locations within complex fisheries habitats should micrositing not be possible to maintain a uniform east–west and north–south grid of 1 ×

1–nm spacing between WTGs with diagonal transit lanes of at least 0.6 nm wide" (DEIS page 2-9).

MA DMF provided comments to the Notice of Intent (NOI) to Prepare an EIS for the South Fork Wind Farm dated November 19, 2018 identifying components to include in the DEIS. MA DMF attended public meetings held by BOEM and the USACE on February 9 and 11, 2021. Since the operation and maintenance facility and landfall of the export cable are not in Massachusetts, we will not comment on those aspects of the project. This review focuses on the Benthic Habitat, Essential Fish Habitat, Invertebrates, and Finfish; Navigation and Vessel Traffic; and Other Uses (Scientific research and surveys) sections of the DEIS. Following review of the DEIS, MA DMF provides the following comments.

<u>Purpose and need</u>

- The FEIS should clearly state its energy production goal and should use the fewest number of turbines to achieve that goal. As stated in the DEIS, "DWSF's goal is to fulfill its contractual commitments to Long Island Power Authority (LIPA) pursuant to a power purchase agreement executed in 2017." In the public meeting on February 11, 2021 BOEM stated that the proponent has a power purchase agreement for 130 MW.
    - The Proposed Action is for up to 15 turbines ranging in size from 6-12 MW. To achieve 130 MW, 11-21 turbines will be needed. There are 18 potential turbine locations of which no more than 15 would be occupied.

<u>Preferred alternative</u>

- MA DMF supports the Habitat Alternative. Turbines should be microsited or eliminated to avoid sensitive habitats including cod spawning areas.
- While MA DMF is supportive of the Habitat Alternative objectives, the DEIS does not clearly define micrositing procedures for avoiding sensitive habitats or what habitats would be deemed sensitive. How micrositing will be done and what thresholds and habitat classification will be used to determine when to move a turbine needs to be described in the FEIS.

<u>Atlantic Cod</u>

- For Atlantic cod, BOEM concludes that "Although local mortality could occur, BOEM does not anticipate population-level impacts. The Project could alter habitat during construction and operations but could restore the habitat after conceptual decommissioning" (page 4-2).
- An analysis of impacts to cod is not presented in the DEIS. The SFWF overlaps with the only known Atlantic cod spawning aggregation in the Mid-Atlantic/Southern New England region. Cod exhibit site fidelity (Zemeckis et al. 2017), are sensitive to sound (Chapman and Hawkins 1973), and their spawning aggregations are sensitive to disturbance (Dean et al. 2012). There are important resource concerns in light of new information regarding potential noise impacts on cod spawning behavior (Stanley et al. 2017). Recent data also suggest that Gulf of Maine winter spawning fish mix in with this assemblage, so project impacts could also affect the Gulf of Maine fishery given transiting and mixing winter spawners in the lease area. The FEIS needs to address the timing of cod spawning activities, the location and extent of spawning aggregations, and

how these impacts will be avoided. A single year of spawning failure could have "irreversible" or "irretrievable" impacts (sensu DEIS section 4.2) to this distinct stock of cod which is only known to spawn on Cox Ledge.

- Construction impacts may be avoidable if pile-driving occurs outside of the spawning period, but the full spatial and temporal extent of cod spawning is still poorly established.
    - A potential mitigation measure is proposed in Table G-2: "No pile-driving activities would occur from January 1 to April 30." Please clarify if this will prevent pile-driving during the cod spawning season using the most recent available monitoring data of cod distribution on Cox Ledge.
- Additional resources are available to assess potential impacts to cod through the Atlantic Cod Stock Structure Working Group.

<u>Invertebrates</u>

- The FEIS needs to describe how both the invertebrate and benthic habitat data will be used for micrositing. The DEIS states that "detailed benthic habitat mapping is underway, and BOEM will work closely with NMFS during the EFH consultation process to quantify impacts to benthic habitat, which will then be used to analyze impacts to invertebrates. This analysis will be included in the EFH assessment and summarized in the FEIS" (page 3-8). The FEIS should identify how these assessments will be used for decision-making and micrositing.
- The DEIS characterizes lobsters as only using complex bottom types. While complex bottom is the preferred habitat, adult lobsters use all bottom types, especially in offshore waters. In addition, adult lobsters regularly traverse soft bottom types when making both localized and long-distance movements. It should also be noted that this area is part of the Southern New England lobster stock, which the 2020 stock assessment declared is depleted and requires significant management action to stop the decline in stock abundance. Any construction activities in regions where the stock remains may adversely affect an already significantly depleted stock and such impacts need to be better described in the FEIS.
- Information on Jonah crabs is also lacking in the DEIS. Seventy percent of the U.S. Jonah crab fishery comes from offshore soft sediment areas in NMFS area 537, which is the region where this and other wind farm development is proposed.
- Section 3.19 characterizes invertebrates as maturing quickly and consequently being less vulnerable to construction impacts. However, this characterization is not representative of many commercially-important invertebrate species in the project area including horseshoe crabs, whelk, Jonah crabs, and lobsters. More species-specific assessments are necessary to capture the diversity of life history strategies and potential project impacts among invertebrate species present in the project area.

<u>Sound and Light</u>

- The impacts of sound on finfish are described for each alternative. However, the issue is not well-described comprehensively. Section 3.4.2.2.2 (Environmental consequences associated with the No Action alternative) describes potential impacts to black sea bass but not cod. Section 3.4.2.2.3 (Environmental consequences associated with the Proposed Action alternative) does not provide any species-specific information.

- Noise impacts to commercially-important invertebrate species are largely unknown, but should not be dismissed. Invertebrates possessing statoliths or similar pressure-sensing organs could be impacted by pile driving and other construction activities. Such potential impacts should be addressed in the FEIS.
- The text does not reflect the length of time pile driving is anticipated or the seasons. According to Table D-1, the Maximum-Case Scenario List of Parameter Specifications, up to 16 foundations (15 WTGs and 1 OSS maximum) will take 4 hours each to drive in (total of 60 hours). However, it is unclear whether multiple foundations will be installed simultaneously, whether work will be performed on a 24-hour schedule or only during daylight hours, and in what season the work will be conducted. Relatedly, it is unclear if other wind farms are expected to be using pile driving at the same time, which could further compound noise impacts. According to Tables E-3 and E-4, pages E-8 and E-13, Vineyard Wind 1, Revolution Wind, Sunrise Wind, U.S Wind, and Ocean Wind all have construction dates within a year of the Proposed Action.
- A more comprehensive description of the potential impacts of sound on finfishes and efficacy of mitigation measures is needed. Cod, in particular, should be included with a specific focus on potential impacts of sound on cod spawning behavior. Among mitigation measures, time of year restrictions and sound attenuation devices need to be better described.
- Additional information on potential light impacts on plankton, larvae, squid, and other light sensitive taxa should be developed in the FEIS.

<u>Cables and EMF</u>

- In our NOI letter we requested: "The impact of EMF on specific organisms, in particular flounders (winter, summer, and yellowtail), longfin inshore squid, Jonah crab, lobster, little skate, winter skate, Atlantic cod, and dogfish should be addressed specifically in the EIS." Some of these species were addressed in Table 3.42-3 on page 3-23, but information is still lacking for several commercially-important species and should be part of the FEIS. The description of existing studies of EMF impacts does not include crustaceans. Several studies have been conducted to date on crustacean species (e.g., Love et al. 2015; Love et al. 2017; Scott et al. 2018), and should be included as part of the FEIS assessment of EMF impacts.
- In general, the DEIS could greatly improve its impact assessment by clearly identifying if studies have been done on cables of the same size and voltage as this cable. If results from such studies are not available (or such studies have not yet been performed), field measurements should be collected to validate EMF modeling that quantifies EMF minimization associated with burial and shielding. This work is necessary to verify the conclusions that 1) "within the range of natural electrical field effects generated by wave and current actions" (page 3-29) and 2) "EMF levels generated by this limits the potential for widespread behavioral effects on large numbers of individuals, so population-level EMF impacts on lobsters, crabs and other mobile invertebrate species are not anticipated. Therefore, effects to invertebrates from EMF are considered negligible" (page 3-27). In particular, demonstration that the shallowest proposed burial (4 feet) is adequate for limiting EMF exposure to the overlying benthic habitat is needed.
- There are several instances in the DEIS where a lack of evidence of EMF impacts is ambiguously described. For example, the DEIS states: "A review of the available

literature revealed no documented long-term impacts from EMFs on clam habitat as a result of the existing power cables connecting Nantucket Island to mainland Massachusetts" (page 3-12). Similarly, "There is no evidence to indicate that EMF from undersea AC power cables adversely affects commercially and recreationally important fish species within the southern New England area (CSA Ocean Sciences Inc. and Exponent 2019)" (page 3-93). Please clarify if impacts are not documented because studies were not conducted, or if available studies show no impact as the two causes would elicit opposite responses. The former would support a precautionary approach and the need for additional research while the latter would provide support for the proposed cable installation methods.

- There was no description of the required monitoring in areas where repairs are made. If repairs are made, monitoring should again be required on an annual basis for the first 3 years. Furthermore, the fisheries communication plan should include protocols for cable repairs. The fishing industry should be notified when areas of exposed cable are detected during the monitoring process but repair and burial cannot be accomplished immediately.

Water Circulation and Temperature

- The DEIS identifies potential hydrodynamic disturbance as "a topic of emerging concern" (p. 3-13) due to potential turbine impacts on the Mid-Atlantic Bight cold-pool. Given the ecosystem-level impacts of this potential alteration, this topic should receive greater attention in the FEIS. Water temperature should be closely monitored in and adjacent to the lease area to assess possible mixing of currently stratified waters and other potential thermal impacts.
- Additional information is also needed regarding possible impacts to larval distribution and settlement, particularly for sea scallops. Models of scallop larvae dispersal currently exist and could be adapted for this area. See, for example, Tian et al. (2009) and Cowles (2017).

Benthic Habitat

- We encourage BOEM to continue to address challenges with the benthic habitat descriptions and connections to essential fish habitat. BOEM and SFWF representatives, including Inspire Environmental scientists, have received funding to explore this issue in more detail.
- "Sand and muddy sand and mud and sandy mud areas are categorized under non-complex habitat because they do not include a substantial portion of coarse-grained sediment" (page 3-5). The FEIS should include an assessment of seabed energy and whether or not there are areas of active sand movement that could result in the uncovering of hard/complex seafloor features.
- Figure 3.4.2.1 contains important information on habitat classification within the Lease Area but is low resolution and difficult to read. MA DMF requests an ArcGIS geodatabase with the information in Figure 3.4.2.1.
- We recommend use of natural materials for cable protection.
- Table G-1 indicates the following environmental mitigation to protect sensitive seafloor habitats: "A plan for vessels would be developed prior to construction and used to identify no-anchor areas inside the maximum work area (MWA) to protect sensitive habitat or other areas to be avoided" (page G-3). Within the DEIS, one sensitive habitat is

identified, "squid spawning sites" (page 3-19). What are the others and how will they all be identified?

- Information regarding the distribution and temporal persistence of shellfish and longfin squid mops and their vulnerability to project activities should be provided in the FEIS.
- We recommend that the scour protection be sloped to its outer edge so there is no edge with the surrounding seafloor. Stone with a variety of sizes is recommended. Additional variety in grain size and porosity is beneficial for marine organisms. The method for placing scour protection has not been identified. The method should be accurate in its placement of material to minimize the extent to which the seafloor disturbed.

Impacts to fisheries & compensatory mitigation

- The FEIS should include feedback from fisheries representatives and liaisons to further characterize commercial fishing effort in the project area.
- Compensatory mitigation plans and commitments to compensating for lost gear should be described in the FEIS.
- Coordination with the fishing industry is required if any fixed gear will be removed along the cable route as part of the process of removing obstructions and debris prior to cable laying.
- The DEIS does not include descriptions or examples of how positional data are linked to landings and revenue. A further description of the Kirkpatrick et al. (2017) study in the FEIS would be beneficial.
- The final method for cable installation is not fully described, and we presume could include a period of time when cable is exposed on the seafloor. Such cable exposure will impact fishermen who will be unable to fish the area while the cable is exposed. Additional information clarifying the potential size and length of closure periods for the various cable laying methods (e.g., simultaneous lay and burial versus laying and then burying the cable), as well as how they will be communicated with fishermen, is needed.
- The DEIS states, "Most instances of interference can be mitigated through the proper use of radar gain controls" (page 3-91). This statement needs to be supported with references, and also needs an explanation of how proper use would occur.
- The description of the Northeast Multispecies (large-mesh) fishery (P. 3-70, Footnote 10, Section 3.5.1.1.1) does not include Atlantic wolffish (*Anarhichas lupus*), which is among the 13 species listed for this grouping (https://www.fisheries.noaa.gov/species/northeast-multispecies-groundfish). This should be revised in the FEIS.
- The for-hire recreational fishing section begins with a description of how charter boat captains were consulted to develop information on fisheries. This same information should also be provided for the commercial fisheries.
- Charter fishing effort is depicted as a heat map in Figure C-6 in only qualitative terms ("high" to "low" level of charter trips). This figure should define what "high" and "low" trip levels represent (e.g., number of trips per year).

Fouling

- The EIS should address the management of fouling communities on wind turbines and assess the risk of adverse impacts associated with the management of fouling.

Data availability

- We requested in our NOI letter that "Acoustic bathymetric, seafloor maps, and habitat maps (including imagery and grain size data) should be available in a GIS-compatible manner in online viewers (e.g., Northeast Ocean Data Portal) and downloadable." These data are needed to assess potential impacts and compare alternatives, and should be included in developing the FEIS.

Scientific surveys

- The actual consequences associated with curtailing the federal surveys are not described. The extent of the impact is also not described. The NMFS bottom trawl survey provides critical information on the abundance, distribution, biology, and size structure of fish and invertebrate species throughout the Northeast and Mid-Atlantic. This time series of fisheries-independent data is utilized in the stock assessments of commercially and recreationally important species. The survey has been designed and carried out using a stratified random design since the 1960's. Changes to the selection and distribution of survey stations could have profound implications for the survey results, and may lead to greater uncertainty within stock assessments.
- The FEIS should represent the full implication of the loss of trawl survey stations and a shift in its station selection process, including, for example, the number of survey stations that would be eliminated. Will construction activities be coincident with survey time frames, potentially adversely affecting fish behavior and the resulting quality of the surveys?
- The FEIS also needs to consistently identify this issue. In the DEIS, the Affected Environment section stated that "Scientific research and surveys are anticipated to continue at similar levels to the present" (page 3-159) yet also states, "scientific research and protected species surveys could be curtailed within the Lease Area" (page 3-164).
- Table G-2 presents "potential additional mitigation and monitoring measures," including for impacts on scientific surveys. While we appreciate this matter being addressed and the several reasonable potential mitigation efforts, it is unclear what, if anything is being done to address the specific impacts to the federal surveys in this Project Area. This must be more clearly described in the FEIS.

General

- All fisheries communication, fish and benthic monitoring plans, and scientific survey mitigation plans should be approved by NMFS prior to being implemented.

Questions regarding this review may be directed to Dr. John Logan or Dr. Kathryn Ford in our New Bedford office at john.logan@mass.gov or kathryn.ford@mass.gov.

Sincerely,

Daniel J. McKiernan
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